

Patent Claims

What is claimed:

1. An adjustment apparatus for regulating the inclination angle of a
5 spindle motor of an optical disk drive, wherein said spindle motor is
mounted on a driving circuit board which is mounted in a traverse module and
has adjustable screws for regulating the inclination angle of said driving
circuit board and said spindle motor; said adjustment apparatus comprising:
an optic axis regulating tool for containing said traverse module
10 and regulating said adjustable screws of said driving circuit board, wherein
the top surface of said optic axis regulating tool has an opening to
expose said spindle motor and a guide rail of said traverse module;
a standard plate, placed in said opening and against on said guide
rail, wherein the upper surface of said standard plate is in parallel with
15 said guide rail;
a comparable turning wheel, placed in said opening and covering
said spindle motor, wherein the upper surface of said comparable turning
wheel is in parallel with the rotation plane of said spindle motor and a plurality
of turbine-like blades are set at the edge of said comparable turning wheel;
20 a gaseous spray nozzle, mounted on the top surface of said optic axis
regulating tool and facing the edge of said comparable turning wheel and
spraying gas out toward said turbine-like blades to drive rotation of said
comparable turning wheel and to simultaneously drive rotation of said spindle
motor; and

an autocollimator, emitting light beams respectively onto said standard plate and said comparable turning wheel and detecting the reflective light beams thereof to decide the inclination of said comparable turning wheel in relation with said standard plate;

5 wherein an operator can regulate said adjustable screws on said driving circuit board through said optic axis regulating tool, based on the detecting results of said autocollimator so as to regulate the inclination angle of said spindle motor.

10 2. The adjustment apparatus of Claim 1, wherein a disk loader is disposed on the upper surface of said spindle motor and the upper surface of said disk loader is covered with said comparable turning wheel.

3. The adjustment apparatus of Claim 1, wherein said driving circuit
15 board has two of said adjustable screws thereon respectively for regulating the inclination angle of said spindle motor at the X axis and the Y axis thereof.

4. The adjustment apparatus of Claim 3, wherein a rotation node is respectively set at the two sides of said optic axis regulating tool for
20 regulating said adjustable screws on said driving circuit board.

5. A method for regulating the inclination angle of a spindle motor of an optical disk drive, wherein said spindle motor is mounted on a driving circuit board which is mounted in a traverse module and said traverse module

has a guide rail for an optical pick-up head to slide thereon; said method comprising:

placing said traverse module in an optic axis regulating tool, wherein the top surface of said optic axis regulating tool has an
5 opening to expose said spindle motor and said guide rail;

placing a standard plate in said opening and against on said guide rail, wherein the upper surface of said standard plate is in parallel with said guide rail;

placing a comparable turning wheel in said opening and covering
10 said spindle motor with said comparable turning wheel, wherein the upper surface of said comparable turning wheel is in parallel with the rotation plane of said spindle motor and a plurality of turbine-like blades are set at the edge of said comparable turning wheel;

spraying gas out toward said turbine-like blades of said comparable
15 turning wheel with a gaseous spray nozzle to drive rotation of said comparable turning wheel and to simultaneously drive rotation of said spindle motor;

detecting the inclination of the upper surface of said comparable turning wheel in relation with said standard plate; and

regulating the angle of said driving circuit board to have the upper
20 surface of said comparable turning wheel in parallel with that of said standard plate such that the rotation plane of said spindle motor is parallel to the plane of said guide rail.

6. The method of Claim 5, wherein said driving circuit board has two adjustable screws thereon respectively for regulating the inclination angle of said spindle motor at the X axis and the Y axis thereof.

5 7. The method of Claim 5, wherein a rotation node is respectively set at the two sides of said optic axis regulating tool for regulating said adjustable screws on said driving circuit board.

10 8. The method of Claim 5, wherein in the step of detecting the inclination of the upper surface of said comparable turning wheel in relation with said standard plate, an autocollimator is used to emit light beams respectively onto said standard plate and said comparable turning wheel and to detect the reflective light beams thereof so as to indicate the inclination of said comparable turning wheel in relation with said standard plate.

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9. An adjustment apparatus for regulating the inclination angle of a spindle motor of an optical disk drive, wherein said spindle motor is mounted on a driving circuit board which is mounted in a traverse module and has adjustable screws for regulating the inclination angle of said driving
20 circuit board and said spindle motor; said adjustment apparatus comprising:

an optic axis regulating tool for containing said traverse module and regulating said adjustable screws of said driving circuit board, wherein the top surface of said optic axis regulating tool has an opening to expose said spindle motor and a guide rail of said traverse module;

a standard plate, placed in said opening and against on said guide rail, wherein the upper surface of said standard plate is in parallel with said guide rail;

5 a comparable turning wheel, placed in said opening and covering said spindle motor, wherein the upper surface of said comparable turning wheel is in parallel with the rotation plane of said spindle motor; and

an autocollimator, emitting light beams respectively onto said standard plate and said comparable turning wheel and detecting the reflective light beams thereof to decide the inclination of said comparable turning wheel in relation
10 with said standard plate;

said adjustment apparatus characterized by pneumatically driving rotation of said comparable turning wheel and simultaneously driving rotation of said spindle motor such that an operator can regulate the inclination angle of said spindle motor through said optic axis regulating tool, based on the
15 detecting results of said autocollimator.

10. The adjustment apparatus of Claim 9, wherein a gaseous spray nozzle is mounted on the top surface of said optic axis regulating tool and sprays gas out toward the edge of said comparable turning wheel to drive
20 rotation of said comparable turning wheel and to simultaneously drive rotation of said spindle motor.